# PATENT SPECIFICATION

719,404

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COMPLETE SPECIFICATION

## Improvements in or relating to the Capping or Sealing of Cups and other Receptacles of Paper or Cardboard

I, HERBERT LEONARD GEE, M.Eng., B.Sc., British Nationality, of "Little Hey," Elmcroft Lane, Hightown, in the County of Lancaster, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the capping or sealing of cartons, cups, and like receptacles, of paper or cardboard—and usually of frustro-conical configuration—adapted to contain liquid or semi-liquid substances, more particularly ice cream; and my invention has for its object to provide a closure for such a receptacle (hereinafter, for convenience of description only, referred to as "carton") which shall be hygienic in use, adapted to positively prevent ingress of moisture, dust, or other foreign matter to the contents of the carton, and which may be readily removed by hand as and when desired.

A carton of the type before referred to is closed conventionally by means of a cardboard or like disc which is pressed into the top of the carton so as to effect its peripheral engagement with an annular recess provided immediately below the carton's rim. This closuring method, however, possesses a disadvantage, amongst others, in that, unless the sealing discs are perfectly flat (a desideratum not always attainable under the necessary conditions of mass production), difficulty is experienced in operating the machines employed to deal mechanically with the closures when the cartons are filled.

The present invention aims to obviate the disadvantages of such a conventional carton sealing method; and, to this end, provides a closure consisting of a pre-formed cap having a medial depressed portion, an upwardly and outwardly directed wall portion and a downwardly directed flange or skirt; and said cap comprising a laminated combination of metallic foil and paper, which latter has been so pre-treated as to enable heat-sealing of the cap to the carton when said upwardly and outwardly directed wall of the medial depressed portion and the depending flange or skirt is pressed respectively into contact with the internal and external surfaces of the carton's rim, the inelastic nature of said metallic foil, and the adhesive property of the pre-treated paper when heated, providing the means whereby the cap is maintained in carton-sealing position.

Thus constructed, the cap may be applied to the top of a carton and a suitably heated supporting chuck inserted in the recess formed by the depressed medial portion to enable the cap to be pressed into sealing engagement with the customary flared or curled rim of the carton.

I will further describe my invention with the aid of the accompanying sheet of explanatory drawings which illustrate, by way of example and not of limitation, one mode of embodiment.

In said drawings, in which the thickness of the cap is exaggerated somewhat for the sake of clarity:—

Fig. 1 is a perspective view of a cap according to the invention.

Fig. 2 is a vertical cross section of the cap in position for fitment to a carton.

Fig. 3 is a fragmentary view, similar to Fig. 2, of the cap when pressed into sealing position on a carton, and

Fig. 4 is a fragmentary view in perspective of a sealed carton.

Referring now to the drawings, the metallic portion $a^1$, $a^2$, $a^3$ of the carton cap closure is formed from foil aluminium, or other malleable metal or metal alloy, for example, two or three thousandths of an inch thick, and includes a medial recessed portion $a^1$, an upwardly and outwardly directed wall portion $a^2$ and a depending flange or skirt $a^3$. Said wall portion $a^2$ of the cap is inclined at an angle in consonance with that of the

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flared rim $y$ of a carton $x$, and a tab $a^4$ is provided on the flange or skirt $a^3$. $b^1$, $b^2$, $b^3$ denotes a lamination of pre-treated paper applied to the underside of the metallic foil.

Thus formed, the cap may be readily applied to the rim $y$ of carton $x$, as shown in broken lines Fig. 2, and the composite wall and flange $a^2$, $b^2$, $a^3$, $b^3$, pressed into sealing engagement with the rim $y$ of carton $x$ by the aid of a heated chuck (not shown) which has been inserted into the recess formed by depressed portion $a^1$, $b^1$ of the cap.

It will be seen that a cap thus constructed and fitted extends over rim $y$ of carton $x$ and is pressed into intimate contact with the internal and external surfaces of said rim to ensure a positive seal against contamination of the contents of the carton.

The tab $a^4$ provides simple and convenient means whereby the cap may be removed when access to the carton's contents is desired.

In general, the functional requirement is that the cap closure, when pressed into engagement with the carton, shall remain tightly thereon, and this advantage is secured in part by the inelastic "dead-folding" nature of the metallic foil, and in part by the adhesiveness of the paper lamination.

Said cap may be embossed or coloured with ornamental or/and indentifying characters or insignia.

What I claim is:—

1. A closure for a container or carton of the kind referred to, consisting of a preformed cap having a medial depressed portion, an upwardly and outwardly directed wall portion, and a depending flange or skirt; and said cap compromising a laminated combination of metallic foil and paper, which latter has been so pre-treated as to enable heat-sealing of the cap to a carton.

2. A carton closure substantially as hereinbefore described and illustrated in the accompanying drawings.

3. In combination, a carton with closure as claimed in either of the preceding claims.

Dated this 27th day of February, 1953.
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Chartered Patent Agent.

PROVISIONAL SPECIFICATION

## Improvements in or relating to the Capping or Sealing of Cups and other Receptacles of Paper or Cardboard

I, HERBERT LEONARD GEE, M.Eng., B.Sc., British Nationality, of "Little Hey," Elmcroft Lane, Hightown, in the County of Lancaster, do hereby declare the nature of this invention to be described in the following statement:—

This invention relates to the capping or sealing of cartons, cups, and like receptacles of paper or cardboard—usually of frustroconical configuration—adapted to contain liquid or semi-liquid substances, as, for example, ice cream; and my invention has for its object to provide a simple and inexpensive one-piece closure for such a receptacle (hereinafter, for convenience of description, referred to as "carton") which shall be hygienic in use, adapted to positively prevent ingress of moisture, dust, or other foreign matter to the contents of a carton, and which may be readily removed by hand as and when desired.

A carton of the type before referred to is closed conventionally by means of a cardboard or like disc which is pressed into the top of the carton so as to effect its peripheral engagement with an annual recess provided immediately below the rim of the carton. This closuring method however, possesses a disadvantage amongst others, in that, unless the sealing discs are perfectly flat (a desideratum not always attainable under the necessary conditions of mass production), difficulty is experienced in operating the machines employed to deal mechanically with the closures when the cartons are filled.

The present invention aims to obviate the disadvantages of such conventional carton sealing method, and in carrying out my invention, a carbon closure consists of a laminate combination of metal foil and paper which is preformed to provide a cap of circular, or other required shape, having a medial recess and a depending (when fitted) flange. Thus configurated, the cap may be applied to the top of a carton and a supporting chuck inserted in the recess to permit said peripheral flange to be crimped or otherwise pressed into sealing engagement with the customary flared or curled rim of the carton.

It will be seen that a closure component thus constructed and fitted extends over both sides of the carton's rim whereto it is intimately pressed, and thus provides a positive seal against contamination of the contents of the carton.

If desired, said paper lamination may be pretreated in known manner in order to permit of the cap being heat-sealed onto a carton.

In all forms of my closure there may be

included a tab to facilitate its removal from a carton by hand, and said cap may be embossed or coloured with ornamental or/and identifying characters or insignia.

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719,404 COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of the Original on a reduced scale.*

FIG.1.

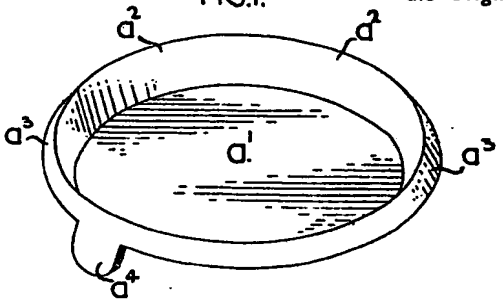


FIG.2.

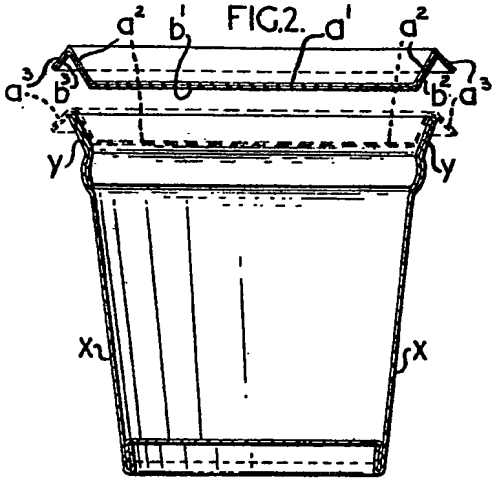


FIG.3.

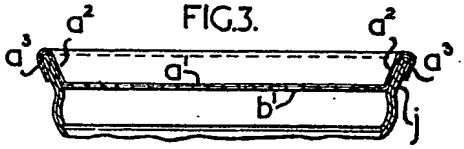


FIG.4.